

rangial sacs, with their parent-joints still attached, are constantly to be met with, placed side by side, and probably retained near each other by a common mucous envelope. The cells at this period are elliptical, their ends being produced somewhat, and coalescing with the now empty joints. At maturity, the old joints are cast off entirely, the cell closes, assumes a perfectly elliptical outline, and the sporangium presents itself in a guise similar to the mature detached sporangia seen in some of the Zygnetaceæ.

The mucous matrix in which the species of this genus are imbedded often exhibits a number of pin-like bodies, stuck, as it were, into every part of the joint,—the heads, which are minute, oblong, granular, and of a rich green colour, being directed outwards. These growths appear to be epiphytical, and are seen also in the various forms of *Sphærozozma* and *Leuronema*. Their minute size renders any examination of their characters impossible. It may be mentioned, however, that they are quite distinct in aspect from the delicate radiating lines frequently met with in the mucous envelope of the majority of the Desmidiaceæ.

Length of joints $\cdot 0008''$ to $\cdot 0009''$; breadth of ditto $\cdot 0012''$ to $\cdot 0019''$. Length of connecting bands $\cdot 0002''$ to $\cdot 0004''$.

Lower Bengal, 1855.

Plate VIII. fig. 1. Portion of a filament seen in front view. Fig. 2. End view of a single joint. Fig. 3. Two joints undergoing division. Fig. 4, exhibiting the appearance of a single connecting band. Fig. 5. End view of a joint, showing the pin-like epiphytic growths. Fig. 6. A sporangium just prior to the casting-off of the empty parent-joints.

[All the figures, with the exception of Fig. 4. Pl. VIII., are magnified 400 diameters.]

[To be continued.]

XXII.—Remarks on Mr. M'Andrew's "Note on the Comparative Size of Marine Mollusca in various Latitudes of the European Seas." By JOHN GWYN JEFFREYS, F.R.S.

THE importance of this question in a geological point of view, and especially with regard to the history of the so-called "Glacial epoch," will, I trust, be accepted as my apology for saying a few words on the subject. Although I do not profess to have had the experience of my friend Mr. M'Andrew in dredging in extreme northern and southern latitudes, my acquaintance with the marine Testacea of our own coasts, as well as a careful examination of the collections of Möller, Costa, D'Orbigny, Mr. M'Andrew, and others in the British Museum, with reference to the maximum size of the specimens contained therein, compared with those in my own collection of British shells (inde-

pendently of my Mediterranean dredgings), enable me to substantiate the proposition which I ventured to enunciate in a former Number of the 'Annals' (ser. 3. vol. ii. p. 120), that, "in general, the size of specimens increases in a ratio inverse to their northern, and converse to their southern, point of latitude."

I will now consider, *seriatim*, all the instances adduced by Mr. M'Andrew, by which he seeks to disprove my proposition.

1. *Corbula nucleus*.—This species is very variable in respect of size on the British coasts; and Mr. M'Andrew may have found a small variety upon the shores of North Drontheim.

2. *Trochus lineatus*.—Specimens which I have collected in Wales and Donegal Bay considerably exceed in size Mr. M'Andrew's specimens from the north coast of Spain and Mogador.

3. *Astarte sulcata*.—Most variable in size on our own coasts, and probably also in the northern localities indicated by Mr. M'Andrew.

4. *Astarte triangularis*.—I believe I can match, in point of size, specimens from North Britain with any which Mr. M'Andrew has from Gibraltar Bay.

5. *Crenella* (*Modiola*) *marmorata*.—The largest specimens I ever saw were said to come from Greenland.

6. *Crenella rhombea*.—The size of some of my specimens from Guernsey is fully equal to that of Mr. M'Andrew's largest specimen from the Canaries or Mediterranean.

7. *Nucula nucleus*.—Mr. M'Andrew's specimens from Finmark appear to be a small variety, which also occurs on our own coasts.

8. *Nucula decussata*.—Mr. M'Andrew's specimens from the south of Spain are not much more than half the size of my Oban specimens.

9. *Cardium rusticum*.—Mr. M'Andrew had probably not seen the very large examples from the south of Devon when he stated that this species increased in size southward from the British Channel.

10. *Cardium papillosum*.—This has only recently been discovered to inhabit the British Isles; but a specimen in Dr. Lukis's cabinet is quite as large as any that I have seen from the Mediterranean.

11. *Cardium pygmaeum*.—Mr. M'Andrew's specimens from Vigo Bay are not so large as some which the late Mr. Warren sent me from the south of Ireland; and I found specimens nearly as large as the last at Falmouth.

12. *Venus verrucosa*.—British specimens are larger than any which I have seen from more southern latitudes.

13. *Mactra stultorum*.—I suspect that the specimens mentioned by Mr. M'Andrew belong to another species, probably to the *M. inflata* of Bronn.

14. *Littorina rudis*.—This species is known to be extremely variable in respect of size. The largest I have ever seen were from the north of Ireland.

15. *Scalaria communis*.—I have never seen any Mediterranean specimens equal in size to those found in this country.

16. *Bulla hydatis*.—Does Mr. M'Andrew mean the *B. hydatis* of Linnæus, which is extremely rare in this country, but common in the Mediterranean, or *B. cornea* of Lamarck, which is our common species, though it is also found in the Mediterranean?

17. *Murex erinaceus*.—British specimens are considerably larger than those from the coasts of Spain collected by Mr. M'Andrew, and now in the British Museum.

18. *Cerithium reticulatum*.—Mr. M'Andrew probably means the large variety (*C. lima* of Bruguière), which is found in the Channel Isles as well as in the Mediterranean. Specimens of the normal form, which I obtained by dredging on the Piedmontese coast, are smaller than those of our own shores. This last is the var. β . of Philippi.

19. *Cerithium* (Triforis) *perversum*.—The same remark applies to this also.

20. *Aclis supranitida*.—Specimens collected by myself in North Wales are quite as large as those of Mr. M'Andrew from Madeira. An allied species (*A. ascaris*), which is of a much smaller size, is frequently confounded with the above, and may have been referred to by Mr. M'Andrew as the British species.

Tellina balaustina is not, as Mr. M'Andrew might lead your readers to suppose, only found on the western or Atlantic coast. It also occurs on the eastern coast of Zetland, and probably is as common there as in the Mediterranean; but the northern seas are, during the greater part of the year, too stormy to admit of much exploration.

Even in the case of the *Teredines*, which inhabit submerged and floating wood, and may therefore be supposed to be peculiarly subject to climatal influence, specimens of *Teredo denticulata* from Greenland, in the British Museum, are twice the size of the few specimens which have been hitherto found living on the British shores; while *T. Philippii* attains here much greater dimensions than in Sicily or more southern parts. British examples of *T. Norvagica*, *T. navalis*, and *T. pedicellata*, appear also to exceed in size those found on the north coast of Spain and in Sicily, judging from the figures given by Quatrefages and Philippi. The *Teredines* are stated by M. Laurent not to be pelagic, but confined to the coast-line, although some of the species have a very wide geographical range.

Taking the British Mollusca as the standard of comparison, I would also remark that the following species in particular appear

to attain a larger size in our own seas than in the south of Europe: viz., *Murex corallinus*, *Lachesis minima*, *Rissoa striatula*, *Donax politus*, *Avicula Tarentina*, *Galeomma Turtoni*, and *Trochus striatus*. These are, according to the late Professor Edward Forbes, some of the principal representatives of the "Lusitanian" type.

To these may be added species of *Artemis*, *Cylichna*, *Mactra*, *Mangelia*, *Nassa*, *Natica*, *Neera*, *Pecten*, *Pectunculus*, *Syndosmya*, *Tapes*, *Tellina*, *Tornatella*, *Trochus*, *Turritella*, *Venus*, and probably of every other genus which is common to the European seas.

I have purposely omitted any of the species which Mr. M'Andrew may consider as "Arctic," "Boreal," or "Celtic," although I apprehend such geographical distinctions have no foundation in fact or in nature.

The difference between Mr. M'Andrew and myself (or the error into which one of us has fallen) may have arisen from our respective collections being better furnished with specimens of the shells which each has had greater opportunities of procuring; and it is to be hoped that further experience will show which of our conclusions is correct.

XXIII.—*On the Tribe Colletieæ, with some Observations on the Structure of the Seed in the Family of the Rhamnaceæ.* By JOHN MIERS, F.R.S., F.L.S. &c.

[Continued from p. 95.]

In regard to the general structure of the flower in the *Colletieæ*, there is little to add beyond what we find recorded on the subject; but it may be remarked that the lobes of the calycine border in that tribe, as in others of the *Rhamnaceæ*, have a prominent keel along the middle of their internal face, which terminates below the apex in an elevated callous gland, connected with two other raised lines that run along the border. These medial keels and glands have been supposed by some to be so many sterile stamens; but Brongniart, with more truth, considers their appearance to be the result of the impression left upon the soft fleshy lobes of the calyx, while in æstivation, by the indentation of the enclosed petals and stamens: that such is the real cause, is shown in the instance of *Gouania*, where a similar carinal prominence exists in the calycine lobes, and, in addition, at the base of each keel is seen an acute scale, which is really the rudiment of an abortive stamen. Similar impressions are frequent in many other families where the floral envelopes have a valvate æstivation. We meet with another point of structure in the *Colletieæ*, which, as far as I am aware, has not been noticed by botanists: I refer to the peculiar deve-